



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,787	01/28/2004	Shaomin Samuel Mo	MFA-238US	3987
23122	7590	11/10/2009		
RATNERPRESTIA			EXAMINER	
P.O. BOX 980			AGHDAM, FRESHTEH N	
VALLEY FORGE, PA 19482				
			ART UNIT	PAPER NUMBER
			2611	
			MAIL DATE	DELIVERY MODE
			11/10/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/766,787

**Applicant(s)**

MO ET AL.

**Examiner**

FRESHTEH N. AGHDAM

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 6-12, 14-34 and 36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-12, 14-34, and 36 is/are rejected.
- 7) ☒ Claim(s) 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed June 2, 2009 have been fully considered but they are not persuasive.

#### **Applicant's Argument(s):**

Regarding claims 1-3, 6-12, and 14-34, and 36, at page 13 the Applicant argues that Son does not teach the claimed subject matter "bit stream mapped to the plurality of bands respectively in the first band order and the bit stream mapped to the plurality of bands respectively in the second band order without changing the plurality of bands" because IFFT block converts a frequency domain signal to a time domain signal, and therefore, Son teaches using an OFDM system that converts subcarrier signals in the frequency domain to a single time domain signal.

Regarding the same claims, at pages 13 and 14, the Applicant argues that Son teaches a replica generator that circulates replica data on subcarriers (par. 35 and 41) and does not teach first and second band orders.

#### **Examiner's Response:**

Regarding the first argument set forth above, Examiner disagrees with the Applicant because IFFT block transforms an input signal for frequency multiplexing (i.e. generating OFDM symbols).

Regarding the second argument set forth above, Examiner disagrees with the Applicant because Son clearly teaches "performing cyclic circulation on subcarriers producing the diversity effect" (par. 41).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6-12, and 14-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Son et al (US 2003/0189892).

As to claims 1, 3, 10, 12, 18-19, 23-24, 28-34, Son discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Fig. 2, means 271; Fig. 8; Par. 35 and 41) comprising: mapping an input data to the multiple bands in a first band order (Par. 56); mapping the same data to the same plurality of the multiple bands in a second band order but has a different mapping pattern than the first band order (responsive to the reception of the error indicator from the receiver; Fig. 2, means 271; Fig. 8; Par. 35 and 41); and transmitting the bit stream in the first band order and the bit stream in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (Fig. 2, means 271; Fig. 8; Par. 35 and 41). Son does not expressly teach that the input data is a bit stream. However, one of ordinary skill in the art would recognize that it is well known in the art that the input data of Son is a bit stream in order to simplify the signal processing. Therefore, it would have been obvious to one of ordinary skill in the art to have a bit stream as the input data for the reason stated above.

As to claims 2 and 11, Son discloses an OFDM system that operates in accordance with the subject matter of claims 1 and 10 cited above. However, Son does not expressly disclose that multiple bands in the first and second band orders are selected from the ultra wideband (UWB) channel. One of ordinary skill in the art would recognize that it would have been obvious to one of ordinary skill in the art to utilize the combination of OFDM with UWB in order to transmit large amounts of digital data over a wide spectrum of frequency bands with very low power as it is evidenced by. Therefore, it would have been obvious to one of ordinary skill in the art to utilize the combination of OFDM with UWB for the reason stated above.

As to claims 6 and 14, Son discloses that the bit stream is mapped to the first band order in a frame time and the bit stream is mapped to the second band order in a subsequent frame time to the frame time in which the bit stream is mapped to the first band order (e.g. in response to retransmission request; Par. 55).

As to claims 7, 9, 15, 20, and 25, Son discloses a method of and/ or an apparatus for improving data transmission to a receiver utilizing multiple bands (Fig. 2, means 271; Fig. 8; Par. 35 and 41) comprising: mapping an input data to the multiple bands in a first band order (Par. 56); mapping the same data to the same plurality of the multiple bands in a second band order but has a different mapping pattern than the first band order (responsive to the reception of the error indicator from the receiver; Fig. 2, means 271; Fig. 8; Par. 35 and 41); and transmitting the data in the first band order and the data in the second band order for receipt by a receiver without changing a transmission frequency band of the multiple bands (Fig. 2, means 271; Fig. 8; Par. 35

and 41); receiving the data in the multiple bands during a first transmission and the data in the multiple bands during a second transmission (Fig. 2, means 271; Fig. 8; Par. 35 and 41); demapping the first band order data to obtain the first band order data corresponding to the input data (Fig. 2, means 271; Fig. 8; Par. 35 and 41); demapping the second band order data corresponding to the retransmitted data (e.g. responsive to the error detection result of the first band order; Fig. 1A; Par. 56, 62, and 111-112); and inherently processing the first and second band order data to yield the transmitted data (Fig. 1A; Par. 56, 62, and 111-112).

As to claims 8, 16-17, 21-22, and 26-27, Son discloses a method and/or apparatus for data recovery utilizing retransmission request protocol, wherein the symbols of the retransmission signal is combined with the initial transmission signal prior to decoding (Par. 51 and 54-55).

### ***Allowable Subject Matter***

Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRESHTEH N. AGHDAM whose telephone number is (571)272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. N. A./

Examiner, Art Unit 2611

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611